BORANUP BOSSIAEA (*BOSSIAEA DISTICHA*): DISTRIBUTION AND BIOLOGY

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ABSTRACT

The distribution of the restricted plant, the Boranup Bossiaea (*Bossiaea disticha*) is detailed. The species contains three distinct forms, one a prostrate coastal ecotype, the others differing in flower colour. While largely centred on the Boranup Forest, the species extends along the Leeuwin–Naturaliste Ridge to the north and south. The species is well conserved in Leeuwin–Naturaliste National Park.

INTRODUCTION

Bossiaea disticha is a striking feature of the Karri forest in the Boranup area in spring, where it often forms a dominant component of the lower shrub layer. The species has a very restricted range (Keighery, 1981) compared to many other members of the Fabaceae of Western Australia. It has been thought of as restricted to the Boranup State Forest, and has been listed in many rare plants reports as actually or potentially rare (Marchant and Keighery, 1979 and Briggs and Leigh, 1981). However, little detailed survey has been undertaken on this species. In 1990 as part of a wider survey of the rare flora of the Scott Plains (Keighery and Robinson, 1992) I was able to undertake a survey of the distribution of *Bossiaea disticha*.

DISTRIBUTION AND VARIATION OF *BOSSIAEA DISTICHA*

The distribution of *Bossiaea disticha* is shown in Figure 1. Unlike previous assumptions the species is not confined to the Boranup Forest, but extends from Ellen Brook to Cape Leeuwin, along the southern half of the Leeuwin–Naturaliste Ridge, a range of 55 kilometres. Interestingly *Bossiaea disticha* does not cross the Blackwood estuary (However, three feral plants are established on the verge of Dalton Road, south of Scott River Road, in this area) despite apparently suitable habitat (Karri forest) being present on the adjacent shore. The poorly drained clayey soils and occasional inundation of this area are not able to be colonised by *Bossiaea disticha* which does not grow in winter wet or poorly drained sites. This confines the species to the well drained loams and granites of the Leeuwin–Naturaliste Ridge, west of the Black-wood River, in the southern portion of its range. The northern limit of the species range corresponds to the 1,000 mm isohyet, and the eastern limit, in this area, by

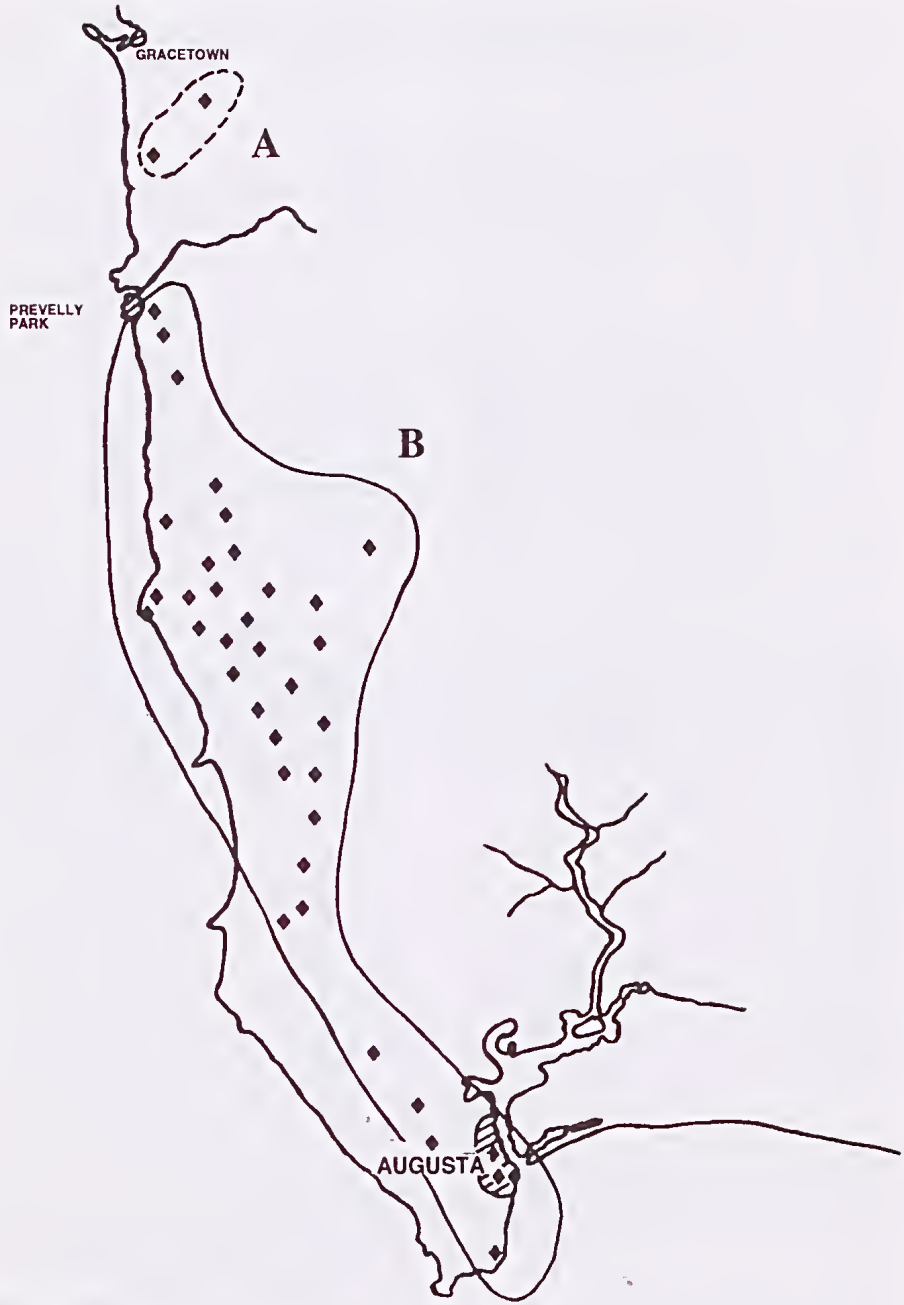

Figure 1. Distribution of *Bossiaea disticha*
Area A : brown flower colour form.
Area B : yellow flower colour form.

the decreasing rainfall and the lack of suitable soils (granites and Karri loams). All of these factors restrict the occurrence of *Bossiaea disticha* to the southern half of the Leeuwin–Naturalista Ridge.

Only *Acacia subracemosa* (truly confined to the Boranup Karri Forest) and *Kennedia macrophylla* (confined to Cape Leeuwin) have more restricted ranges in the area. The *Acacia* is abundant in the Boranup Forest, and well conserved. However, the *Kennedia* occurs as scattered disjunct populations and is legally protected as rare flora.

Bossiaea disticha grows in Karri (*Eucalyptus diversicolor*) forest, Marri (*Eucalyptuscalophylla*)forest,lowforest or woodland and granite heath. As noted previously the limits on the occurrence of this species seems mainly determined by rainfall and soil type.

Within this area two distinct flower colour forms occur, as illustrated in Figure 2. The northern colour form has brownish flowers and is found only in the Ellen Brook area. Fortunately most populations occur within Leeuwin–Naturaliste National Park. Southern populations have flowers with distinct yellow markings, and are relatively uniform throughout the remainder of the species' range, as shown by the dashed lines on the accompanying map. Both of these colour forms are pollinated by the same suite of solitary bees (*Tricholettes* sp), and probably repre-sent minor genetic differences. Though the colour differences are striking on living material dried flowers fade to a uniform brown after several years and one cannot easily ascribe the type collection with its vague locality to either form. Hence no taxonomic status is given to these variants; rather they should be conserved as distinct local variants of this species.

The few other documented cases of geographically based variation in flower colour of native peas also have not been given formal taxonomic status. Keighery (1985) demostrated that the Middle Island form of *Kennedia nigricans* has a orange rather than the yellow eye on the mainland and breeds true from seed. The Cape Range form of *Swaisonia* (*Clianthus*) *formosus* has a red rather than the black boss found throughout the rest of the species' range. This form also breeds true from seed.

Another variant is found in coastal granite heath on Cape Leeuwin and Cape Freycinet. This is a prostrate or low spreading shrub with short internodes, giving the plant a very leafy appearance. Material form Cape Freycinet retains this habit when grown from seed, suggesting the trait is genetically fixed.

Despite this species restricted range it does contain a number of distinctive, interesting variants, all of which fortunately occur within conservation reserves. This species despite its limited range, seems to be adequately represented in conservation reserves.

BIOLOGICAL NOTES

Bossiaea disticha is a single stemmed shrub, killed by fire, that produces hard seeds which germinate prolifically the following winter. These produce dense even aged stands of plants. Flowering commences the second spring after a summer fire, but can commence the spring after a spring fire the previous year. Plants reach maximum seed production 5

Figure 2. Flower Colour Forms of *Bossiaea disticha*.
(1) Northern Brown Flowered Form.
(2) Southern Yellow Form.

to 7 years after a fire event, and continue to flower and seed for at least another 5 to 7 years. There is no longer term data than this at present.

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